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⑤④ **GAMES APPARATUS.**

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## Description

This invention relates to games apparatus, and in particular to games apparatus from which a player receives tokens when a win situation is achieved.

There are many forms of coin-operated games apparatus found in places such as public houses, clubs and amusement arcades, which reward a skillful or lucky player who achieves a win situation with tokens instead of money. In some countries the law requires that when a win exceeds a certain value, the prize must be paid in tokens and not in cash. The tokens can be reintroduced into the apparatus for further play, but are often also exchangeable for goods.

Tokens won on a particular apparatus in one place are often usable or exchangeable elsewhere, can be used to win further tokens or obtain goods other than from the operator (or owner) of the apparatus on which the tokens were won, this operator being the person who should carry the loss, if any, constituted by the original win. Also, tokens won on a low stake apparatus can be used to win on a high cost machine which would generally offer better winnings.

Certain known apparatus also suffers from the disadvantages that while allowing operation by correct tokens they also allow operation by foreign coins, pieces of metal, and other pseudo tokens. This is a well known problem, see GB-A-1101170.

It is also known to provide tokens having a credit value for use in games apparatus having means to read the values and write decreased values according to usage of the card or increased values if the player achieves a win. The games apparatus must incorporate read and write means for this purpose.

GB-A-1558521 discloses games apparatus which uses a plurality of credit cards each having a different monetary value. The cards must be flexible to be bent to travel through a U shaped card slot channel. When the monetary value is used up the worthless card is returned to the player.

According to one aspect of the invention there is provided games apparatus comprising a playable game which is activated by acceptance of a token in the form of a card, the apparatus including a slot to receive the card, and a reader arranged to read the card and to accept only a card of planar and generally rectangular shape as seen in plan view and having a code with identifying characteristics characterised in that the apparatus includes a housing to hold a stack of the coded cards and which is arranged to dispense one or more such cards from the stack in the event of a win.

Preferably the last card accepted is placed on the top of the stack and winning cards are dispensed from the bottom of the stack.

The card accepting mechanism is adapted to read a code carried by acceptable cards and reject cards not carrying such code. The code can be car-

ried in magnetic, optical, or electrically detectable form. If in magnetic form the code can be in the form of a matrix of magnetised areas, or a strip of magnetised areas. If in optical form the code can be in the form of a plurality of areas differing in light transmission capability from the surrounding material, for example holes or relatively more translucent areas. The code can be printing on a substrate, in which case the code printing can be covered with a filter whereby it can be read only when subjected to particular lighting conditions, such as infrared light from a source associated with the card accepting mechanism. If in electrically detectable form the code can be in the form of areas providing differing electrical capacitance readings.

The invention will now be described by way of example with reference to the diagrammatic drawings, in which:

Figure 1 is a perspective view of a card store or safe forming part of a card accepting mechanism for use in apparatus according to the invention; Figure 2 is a sectional view through the store of Figure 1, shown in two operating conditions;

Figure 3 is a view illustrating insertion of a card into a card accepting mechanism in apparatus according to the invention;

Figure 4 is a perspective view of part of Figure 3; Figure 5 is a view of the mechanism of Figure 3 when dispensing a card, and

Figure 6 is a perspective view of part of Figure 5.

The apparatus to be described constitutes a card accepting mechanism for use in games apparatus according to the invention, the mechanism also serving to dispense cards to a winning player, the cards being planar rectangular cards coded in any of the previously disclosed ways.

The card store shown in Figure 1, referred to as a safe since it guards the cards against tampering, comprises a metal housing 10 shaped to hold a stack 20 of cards 100. The housing 10 is open at the bottom save for a support bay 60, and is open at the top where cards 100 are introduced into the housing 10, a weight 40 being located on top of the stack 20 of cards 100. Mounted on opposite sides of the housing 10 is a pair of jaws 30 each mounted by a hinge 50 at the top of the housing 10, and each having an inwardly directed tooth 90 at its free end. When the jaws 30 are at their inward positions shown at "a" in Figure 2 the teeth 90 are under the stack 20 of cards 100 and hold them off the support tray 60 and in the housing 10 where they are inaccessible. When the apparatus is in use the jaws 30 are moved outwardly by solenoids (not shown) whereby the teeth 30 are withdrawn from under the stack 20 of cards 100 as shown at "b" in Figure 2 such that the stack 20 falls under the action of the weight 40 to be supported by the support tray 60. The cards 100 are then ready to be dispensed by the mechanism.

To return the cards 100 into the housing 10 the jaws 30 are returned to their inward positions under the action of springs in the hinges 50, the arcuate upper surfaces 70 of the teeth 90, and their arcuate path of movement 80 ensuring that the stack 20 is picked up by the teeth 90 and returned to the housing 10.

Referring now to Figures 3 to 6, the mechanism is designed to accept cards 100 after initial insertion, identify the cards as acceptable, move cards to the safe (Figures 1 and 2) if they are to be stored, payout cards as required, and eject faulty or invalid cards.

Figure 3 shows the mechanism about to accept or pay out a card 100.

When a card 100 is inserted into a slot 110 nothing happens until the card is inserted sufficiently to activate a photoelectric detector 120 which signals the arrival of a card in the slot, the card having been pushed between two pinch driving wheels 130. The activation of the detector 120, via operation of an electronic control system controlling the mechanism energises a motor (not shown) which rotates the pinch driving wheels 130 to pull the card through the slot 110 at a constant speed such that the surface of the card passes over a reading head or group of reading heads 140. The card 100 continues to move until the detector 120 is de-activated when the motor is turned off and the card stops moving.

The card 100 is then held between the wheels 130 at one end, and is supported at the other by a tray 200 and additionally prevented from moving further by a lip 150 on the tray. Signals generated from the card as it is moved to this position, generated by the passage of a code pattern on the card over the reading head(s) 140 were fed to the electronic control system for validation tests on the card. The position of the card at this point is shown in Figure 4. If the electronic control system determines the card as invalid, the wheels 130 are driven in reverse direction thus ejecting the card from the mechanism. The signals from the detector 120 are monitored to ensure correct ejection of the card.

In the event that the card 100 cannot be ejected, or if the electronic control system interprets a jam condition inside the mechanism, the bottom components of the mechanism including the lower wheel 130, read head 140 and tray 200 hinge down under the operation of a solenoid in order to allow the card or any debris to fall out of the acceptor area into the bottom of the mechanism. Following this cycle the mechanism is closed again ready to accept or dispense a fresh card.

The last card 100 inserted is always taken into the safe in order to prevent it being tampered with (see Figure 5). To achieve this, the tray 200 supporting the card is mounted on guides 160 and is driven along the guides by the action of a solenoid (not shown) such that the tray 200 moves away from the insertion slot 110 in the direction of the arrow shown. The action of

the guides 160 is designed to move the tray 200 upwards initially such that the card 100 is captured completely within the tray 200 and held by the lips 150 at each end of the tray 200, and then to move the tray 200 rearwards in the direction of the arrow until, at the extent of the rearward movement, the tray 200 suspends the card 100 beneath the stack 20 held by the safe. The position at this point is depicted in Figure 6, showing the card 100 under the jaws 130 ready for acceptance into the safe.

The operation of the jaws 130 of the safe as previously described ensures that the card 100 is collected from the tray 200 and inserted into the stack 20 in the safe.

The tray returns to its original position pending the insertion of another card 100 to activate another game.

If a win is detected from the operation of the apparatus a signal is supplied indicating the requirement for a payout. The payout can be one or a number of cards according to the signal status.

On commencement of payout the jaws 130 of the safe open, and the stack 20 of cards 100 falls a short distance onto stops 170, and such that the lowest card 100 lays in the tray 200. The mechanism is now ready to payout one or more cards as a win.

To do this, the motor is turned on to drive the wheels 130 in the correct direction for payout. Subsequently the tray 200 is driven forward towards the slot 110 and this action slides a card 100 from the bottom of the stack 20, and positions it such that it is gripped by the pinch wheels 130 and ejected by their action through the slot 110 at speed into a collection tray 180 positioned outside of the mechanism where the player can collect winnings.

If more than one card is to be paid out this cycle repeats for as many times as cards are required to be paid out. The action of the movement of the tray 200 between the stops and the lip 150 on the rearmost end of the tray 200 ensures that subsequent cards 100 are pulled cleanly from the stack 20 until the payout is complete. It will be noted that apart from being verified, stored and dispensed, the card is unaffected by its passage through the machine which means that the reading, storing and dispensing means in the machine can be simple and compact. It is of course possible to add features such as a games credit value.

Presetable adjusters control the relative position of the tray 200 below the safe such that just sufficient spacing is allowed for the extraction of one card 100 at a time. Whilst the tray 200 is in the forward position the cards rest on the stops 170 such that a clearance space is maintained between the stops and beneath the stack 20 for the return of the tray 200 to collect another card 100.

The reading head or heads 140 are coupled to a microprocessor operative to determine whether the code read from card 100 inserted into the mechanism

indicates that the card is acceptable, and also to control the various functions of the mechanism in dependence upon insertion of a card, the code on the card, and instructions given by the remainder of the games apparatus. A purpose built single board micro-controller is well suited to perform this function. Because the reading means is adapted to accept into the machine cards of the appropriate code only, the games machine operator can be confident that false or fraudulent tokens cannot be used to his financial disadvantage. Because the code is only machine readable it cannot be tampered with by an unscrupulous player. The operator can arrange that each machine at a site e.g. an amusement arcade is adapted to accept cards bearing an individual code or all machines at that site may accept cards bearing the one code, which is different from the code acceptable to machines at neighbouring sites. The code may be permanent or may be adjustable by the operator.

#### Claims

1. Games apparatus comprising a playable game which is activated by acceptance of a token in the form of a card (100), the apparatus including a slot (110) to receive the card (100), and a reader (140) arranged to read the card (100) and to accept only a card (100) of planar and generally rectangular shape as seen in plan view and having a code with identifying characteristics characterised in that the apparatus includes a housing (10) to hold a stack (20) of the coded cards (100) and which is arranged to dispense one or more such cards (100) from the stack (20) in the event of a win.
2. Apparatus according to Claim 1 characterised in that the apparatus is arranged to pass the last accepted card to the top of the stack (20) and to dispense cards from the bottom of the stack (20).
3. Apparatus according to Claim 2, characterised in that a tray (200) is present to transport an accepted card (100) to the stack (20).
4. Apparatus according to any preceding Claim characterised in that the card (100) carries a code in magnetic or optical form.
5. Apparatus according to any preceding Claim characterised in that each card (100) has a monetary value.

#### Patentansprüche

1. Spielautomat, bestehend aus einem spielbaren

Spiel, das durch die Annahme einer Marke in der Form einer Karte (100) aktiviert wird, wobei der Apparat einen Schlitz (110) für die Aufnahme der Karte (100) und einen Leser (140) für das Lesen der Karte (100) enthält, der nur eine Karte (100) mit ebener Fläche und allgemein rechteckiger Form, wie in der Draufsicht gezeigt, aufnehmen kann, die einen Code mit Kennzeichnungsbuchstaben enthält, dadurch gekennzeichnet, daß der Apparat ein Gehäuse (10) zur Aufnahme eines Stapels (20) von codierten Karten (100) enthält und der für die Ausgabe von einer oder mehreren dieser Karten (100) vom Stapel (20) im Falle eines Gewinns ausgelegt ist.

2. Apparat nach Anspruch 1, dadurch gekennzeichnet, daß die Auslegung des Apparats die letzte angenommene Karte oben auf dem Stapel (20) führt und die Karten von unten aus dem Stapel (20) ausgibt.
3. Apparat nach Anspruch 2, dadurch gekennzeichnet, daß eine Mulde (200) vorhanden ist, um eine angenommene Karte auf den Stapel (20) zu befördern.
4. Apparat nach einem der vorstehenden Ansprüche, dadurch gekennzeichnet, daß die Karte (100) einen magnetischen oder optischen Code trägt.
5. Apparat nach einem der vorstehenden Ansprüche, dadurch gekennzeichnet, daß jede Karte (100) einen Geldwert hat.

#### Revendications

1. Appareil de jeu comprenant un jeu qui est activé par l'acceptation d'un jeton sous la forme d'une carte (100), l'appareil comportant une rainure (110) pour recevoir la carte (100) et un lecteur (140) aménagé pour lire la carte (100) et pour accepter seulement une carte (100) de forme plane et généralement rectangulaire comme illustré en vue en plan et comportant un code avec détails identificateurs avec caractérisation en ce sens que l'appareil comprend un logement (10) pour détenir un empilage (20) de cartes codées (100) et qui est aménagé pour distribuer une ou plusieurs de ces cartes (100) de l'empilage (20) en cas d'effet gagnant.
2. Appareil conforme à la revendication 1 caractérisé en ce sens que l'appareil est aménagé pour faire passer la dernière carte acceptée au sommet de l'empilage (20) et pour distribuer les cartes du bas de l'empilage (20).

3. Appareil conforme à la revendication 2, caractérisé en ce sens qu'il est aménagé un plateau (200) pour transférer une carte acceptée (100) à l'empilage (20).

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4. Appareil conforme à toute revendication précédente caractérisé en ce sens que la carte (100) porte un code sous forme magnétique ou optique.

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5. Appareil conforme à toute revendication précédente caractérisé en ce sens que chaque carte (100) a une valeur monétaire.

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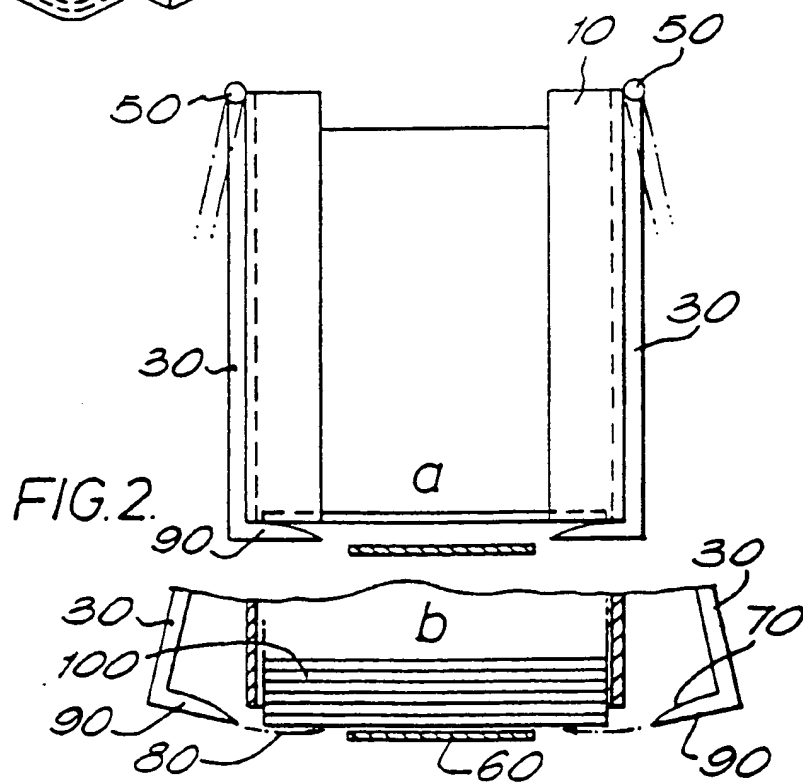
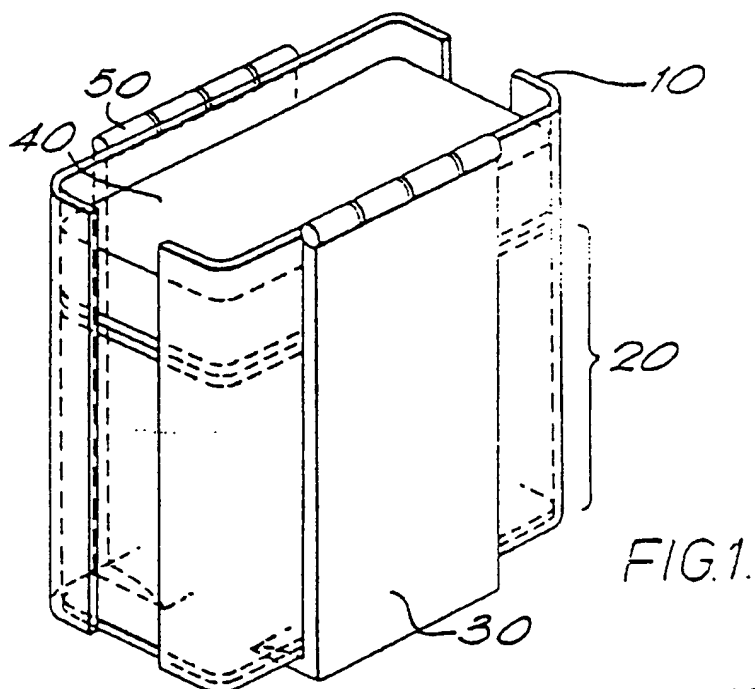
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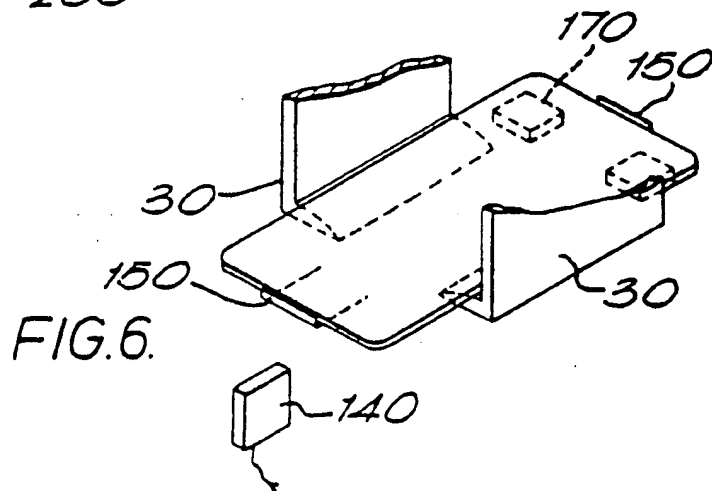
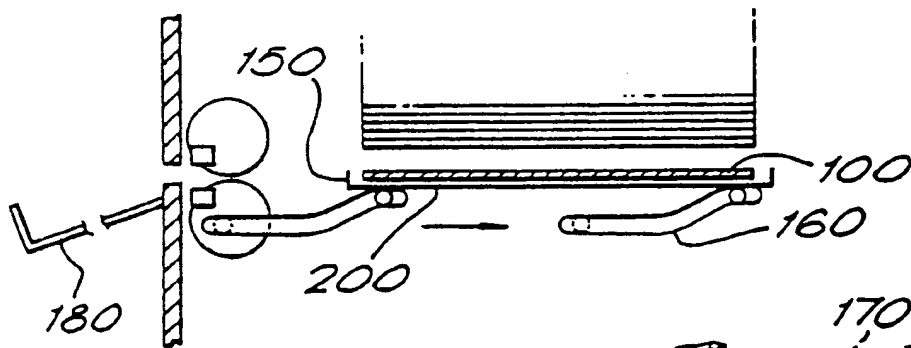
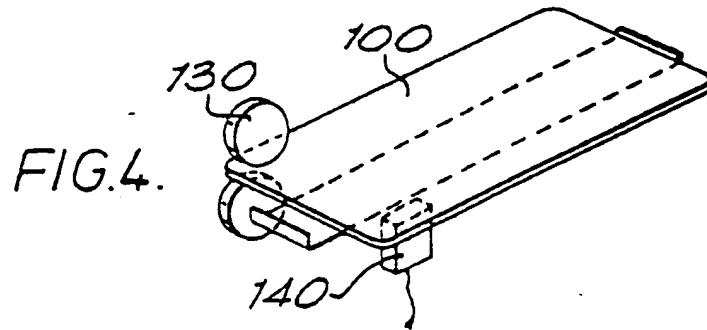
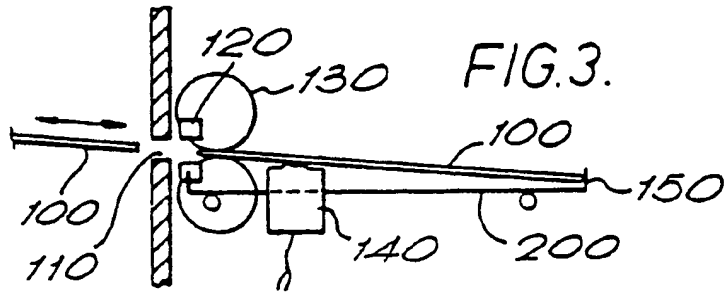
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